



US007376993B2

(12) **United States Patent**
Myers et al.

(10) **Patent No.:** **US 7,376,993 B2**
(45) **Date of Patent:** **May 27, 2008**

- (54) **PLAY GYMS AND METHODS OF OPERATING THE SAME**
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- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 379 days.

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(21) Appl. No.: **10/725,071**

(22) Filed: **Dec. 1, 2003**

(65) **Prior Publication Data**
US 2004/0224823 A1 Nov. 11, 2004

Related U.S. Application Data

(63) Continuation of application No. 10/431,079, filed on May 7, 2003, now abandoned.

(51) **Int. Cl.**
A63H 3/50 (2006.01)

(52) **U.S. Cl.** **5/655; 5/93.1**

(58) **Field of Classification Search** **5/655, 5/93.1, 98.1; 403/170, 173; 135/120.3, 135/135, 138**

See application file for complete search history.

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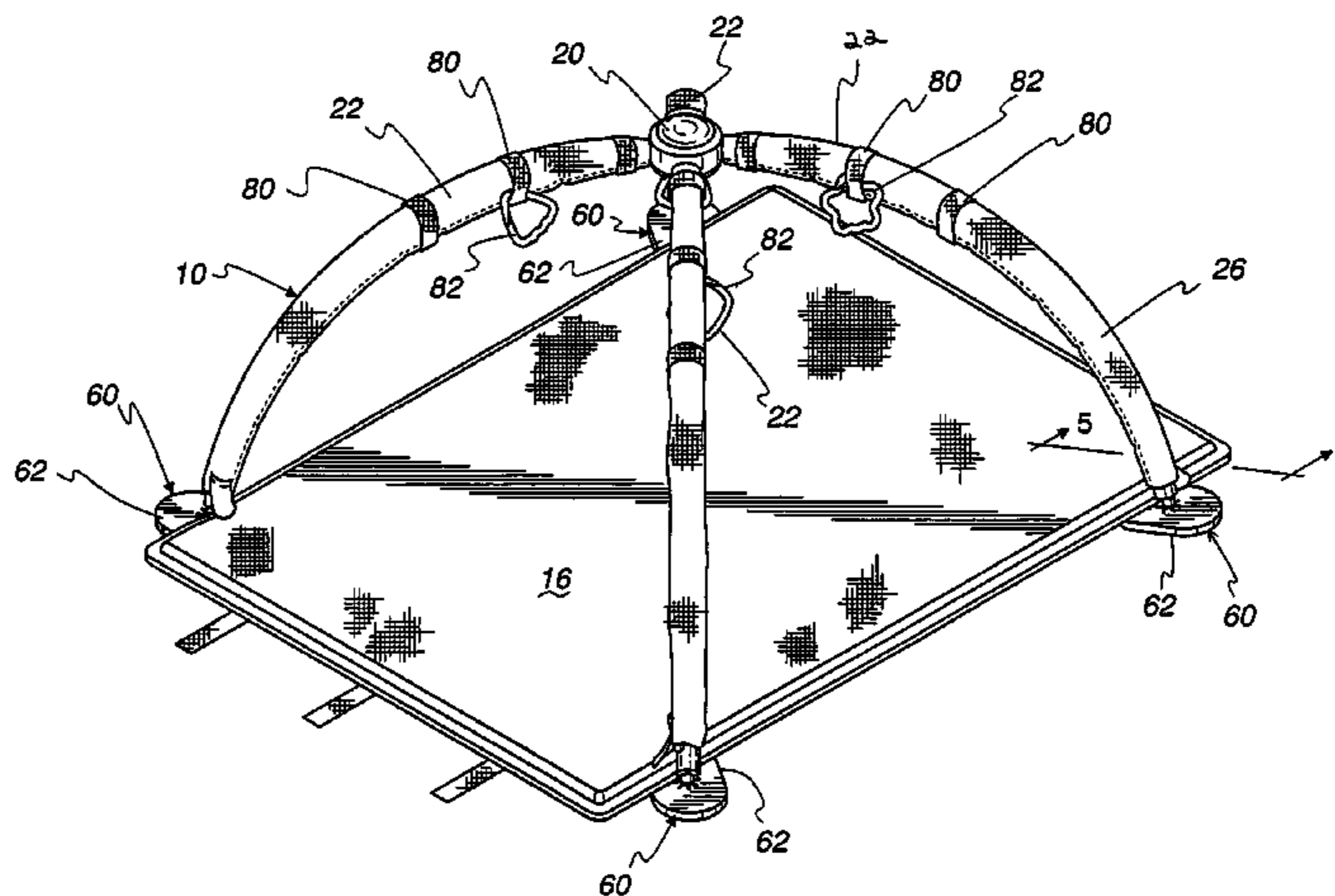
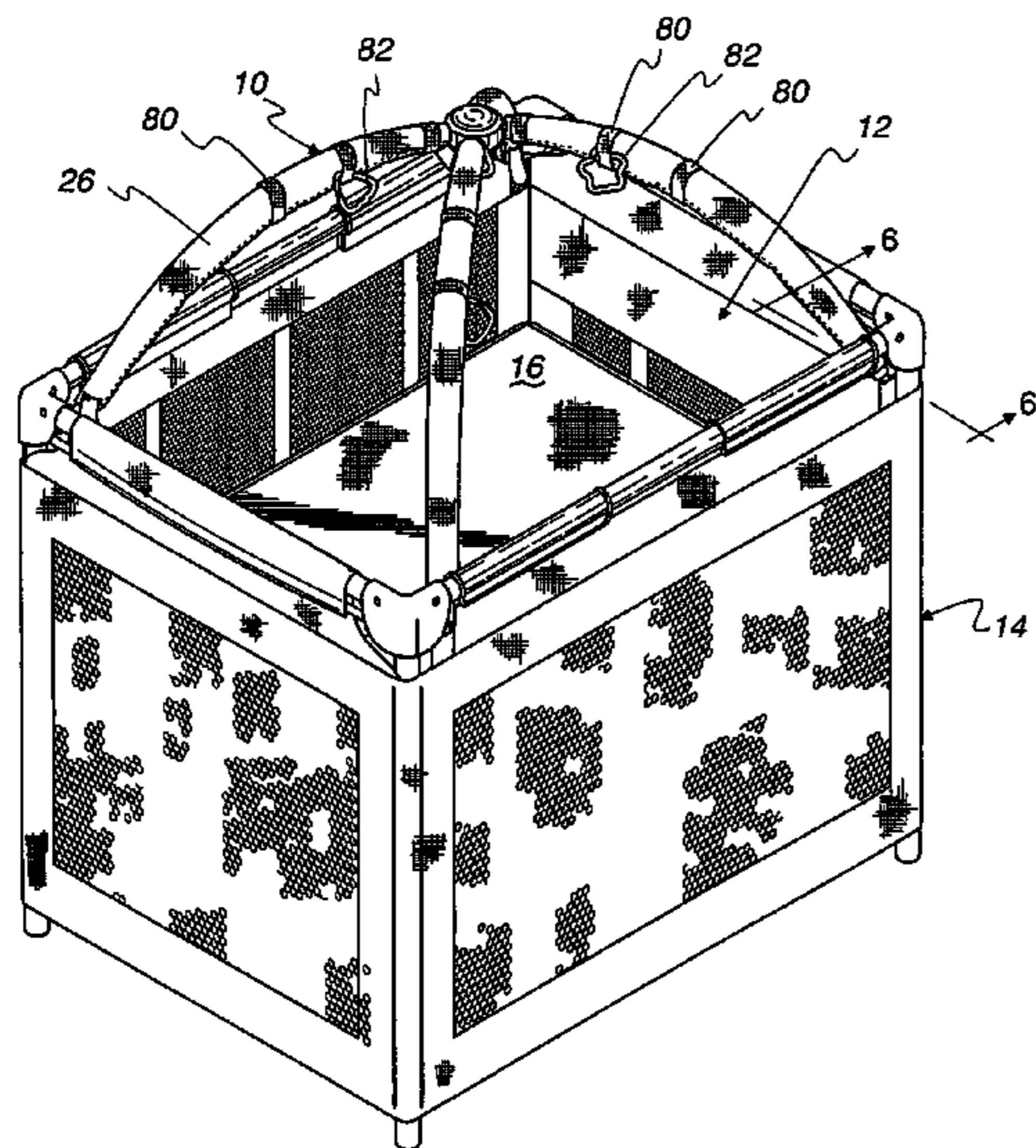
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(57) **ABSTRACT**

Play gyms and methods of operating the same are disclosed. A disclosed example includes a floor mat dimensioned to be positioned within a play yard and/or a bassinet. It also includes a play gym to suspend an object above the mat when the mat is positioned in the play yard and/or the bassinet, and at least one connector to couple the play gym to the mat when the mat is removed from the play gym and/or the bassinet.

31 Claims, 5 Drawing Sheets



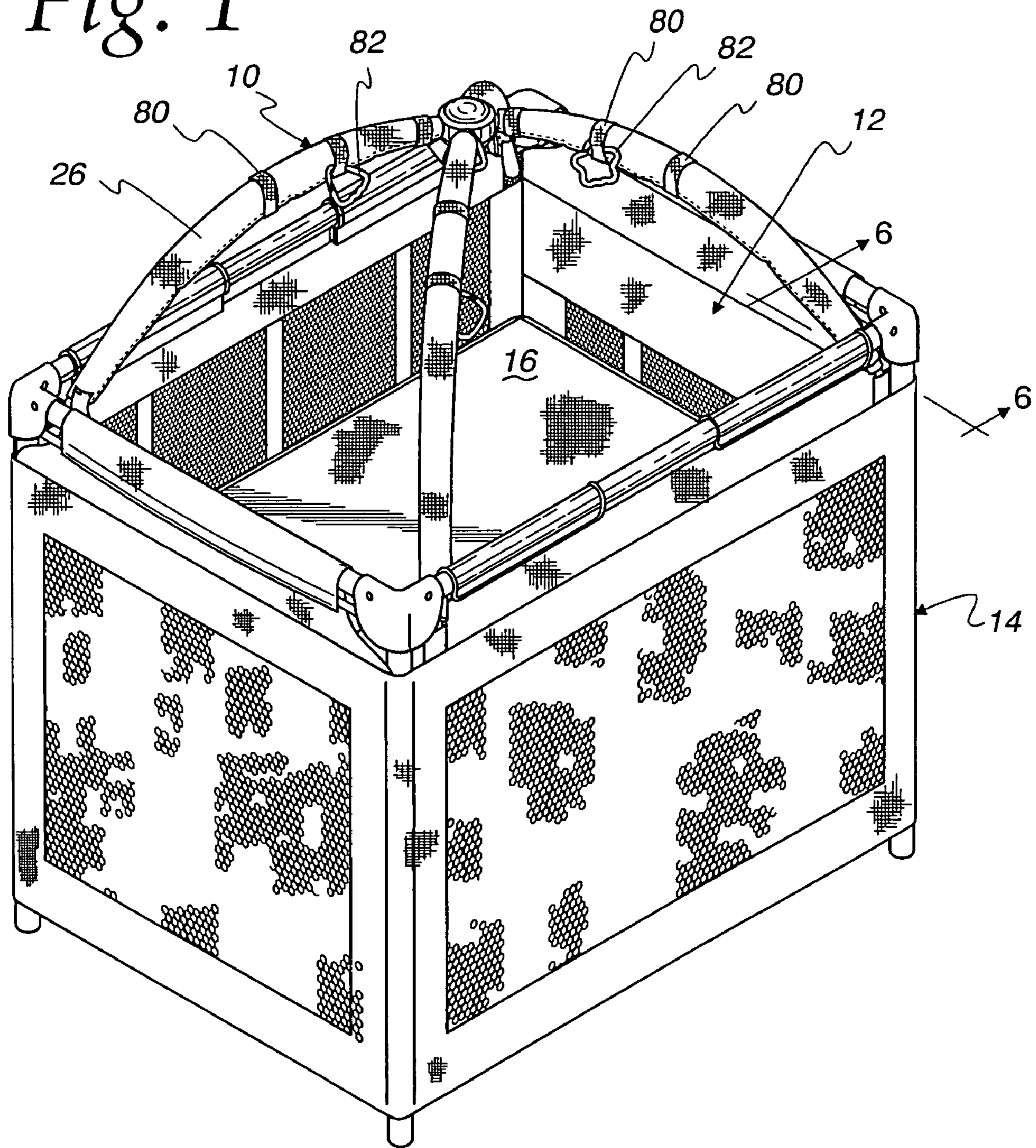
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Fig. 1



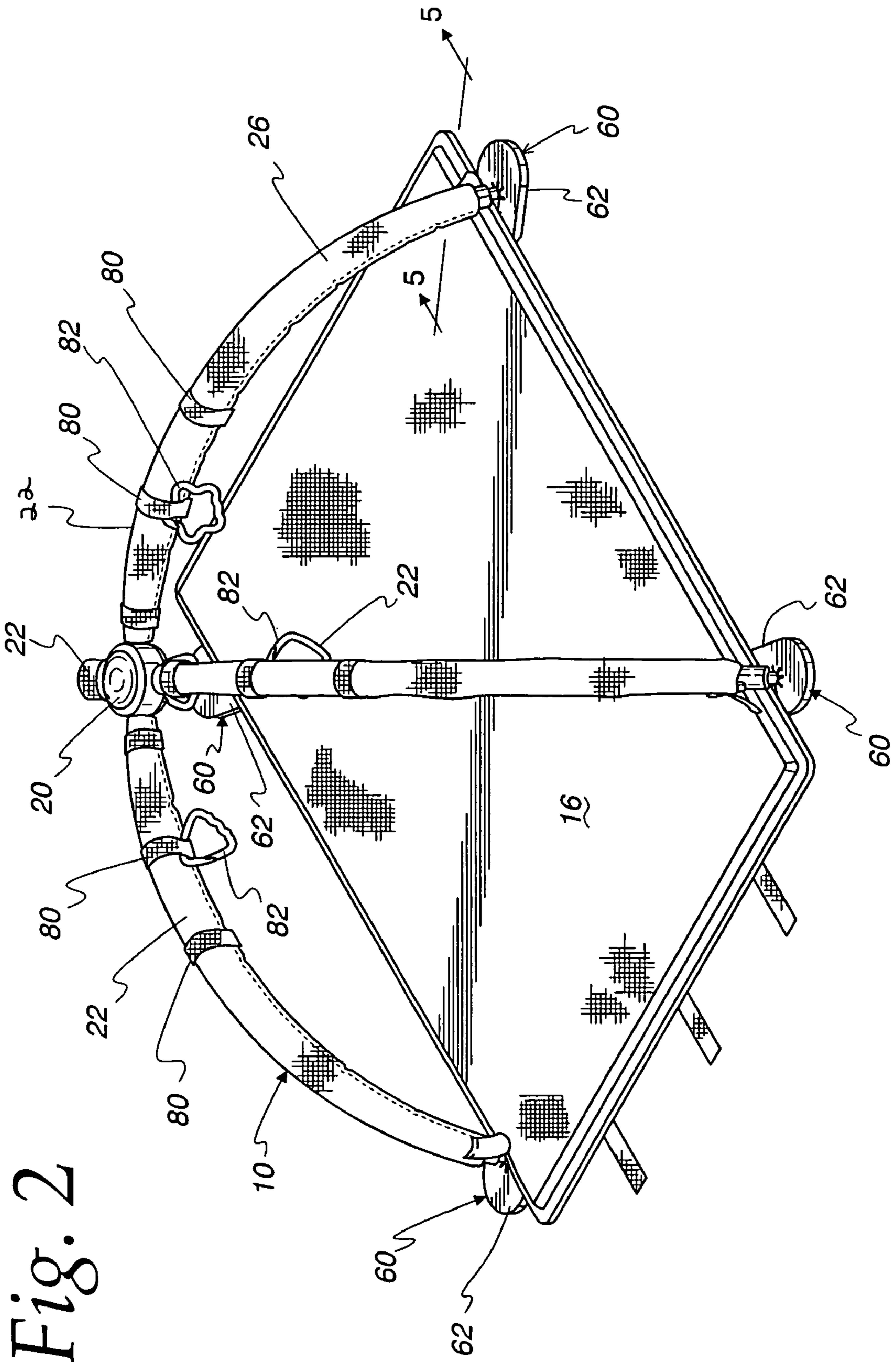


Fig. 2

Fig. 3

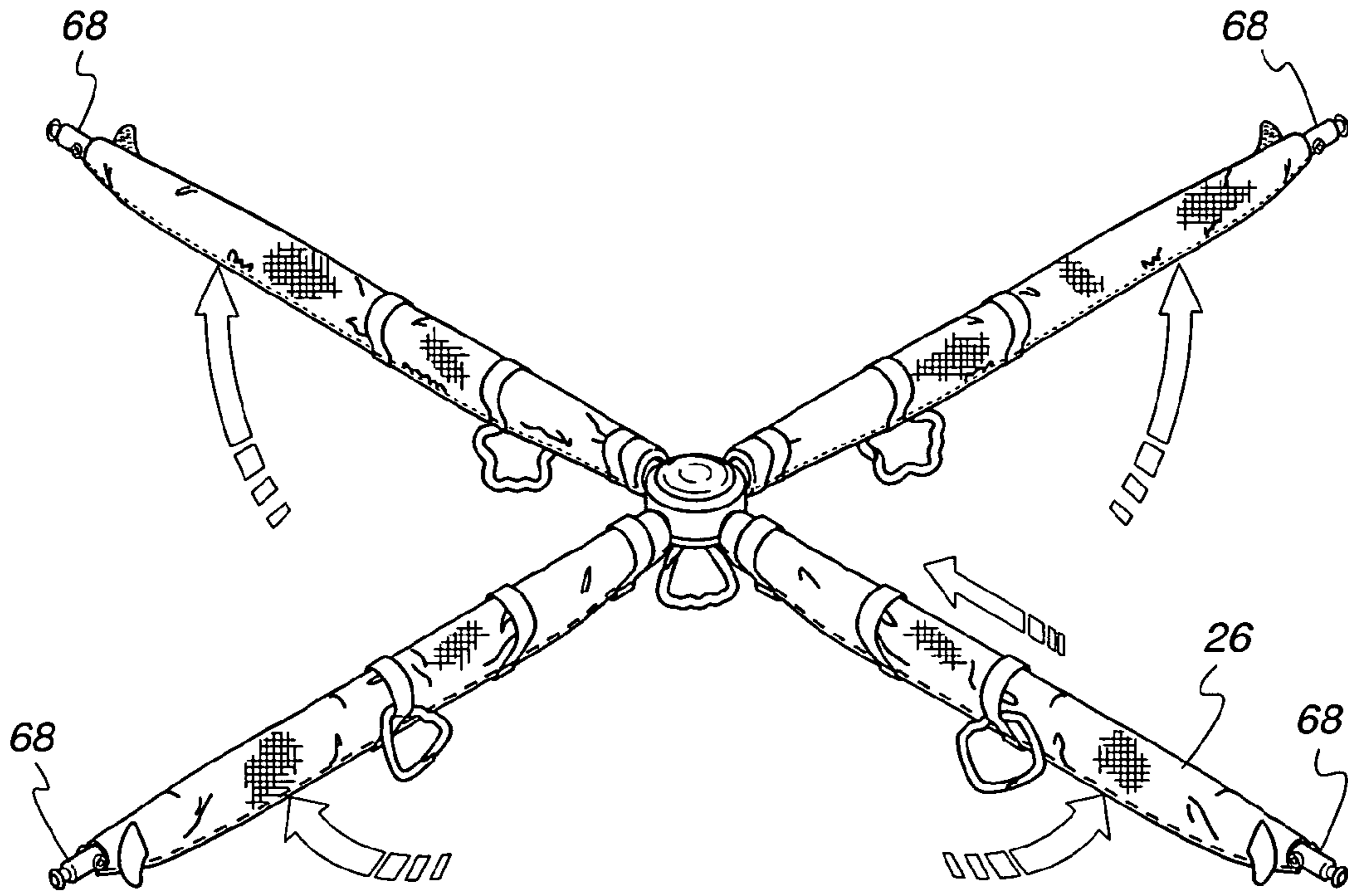


Fig. 4

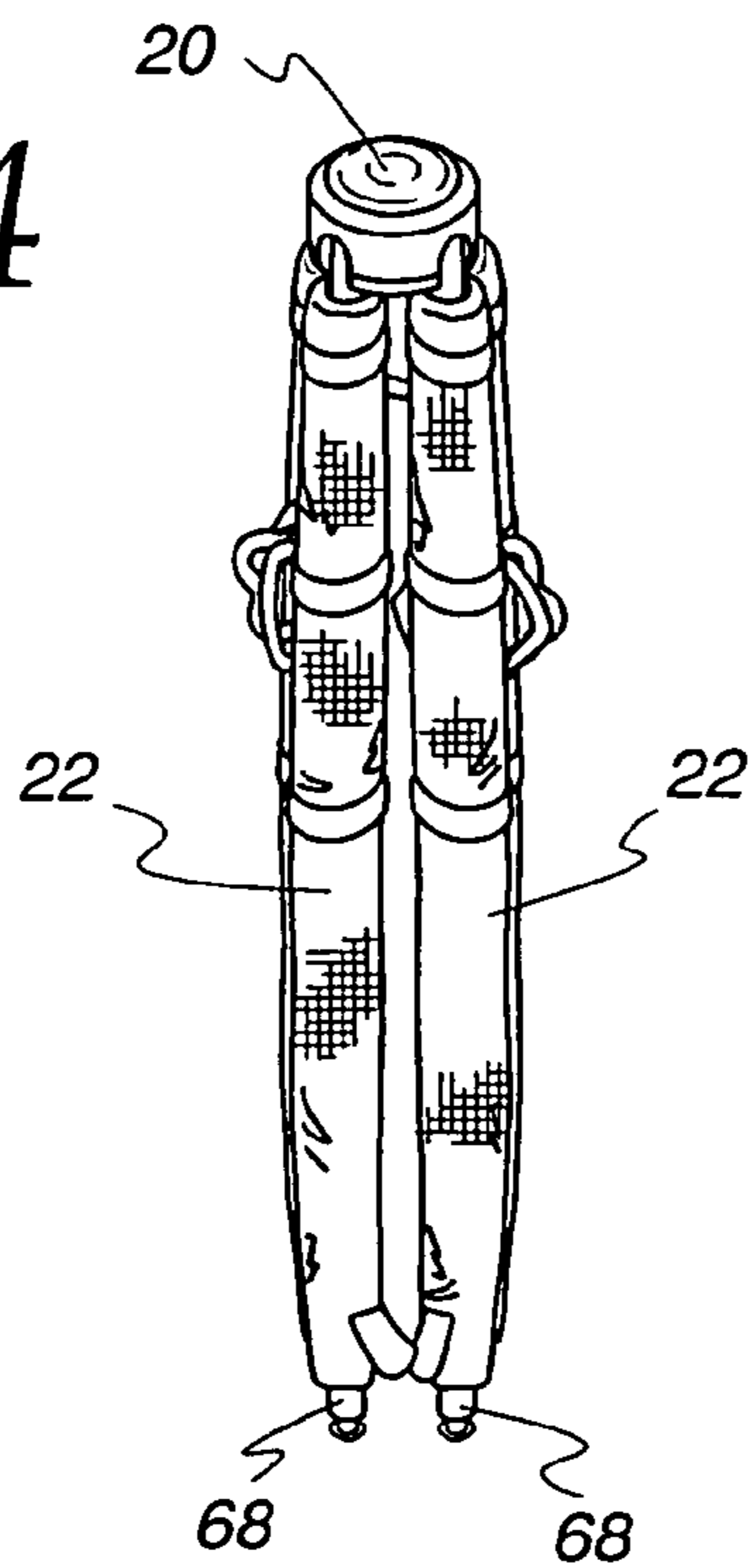


Fig. 5

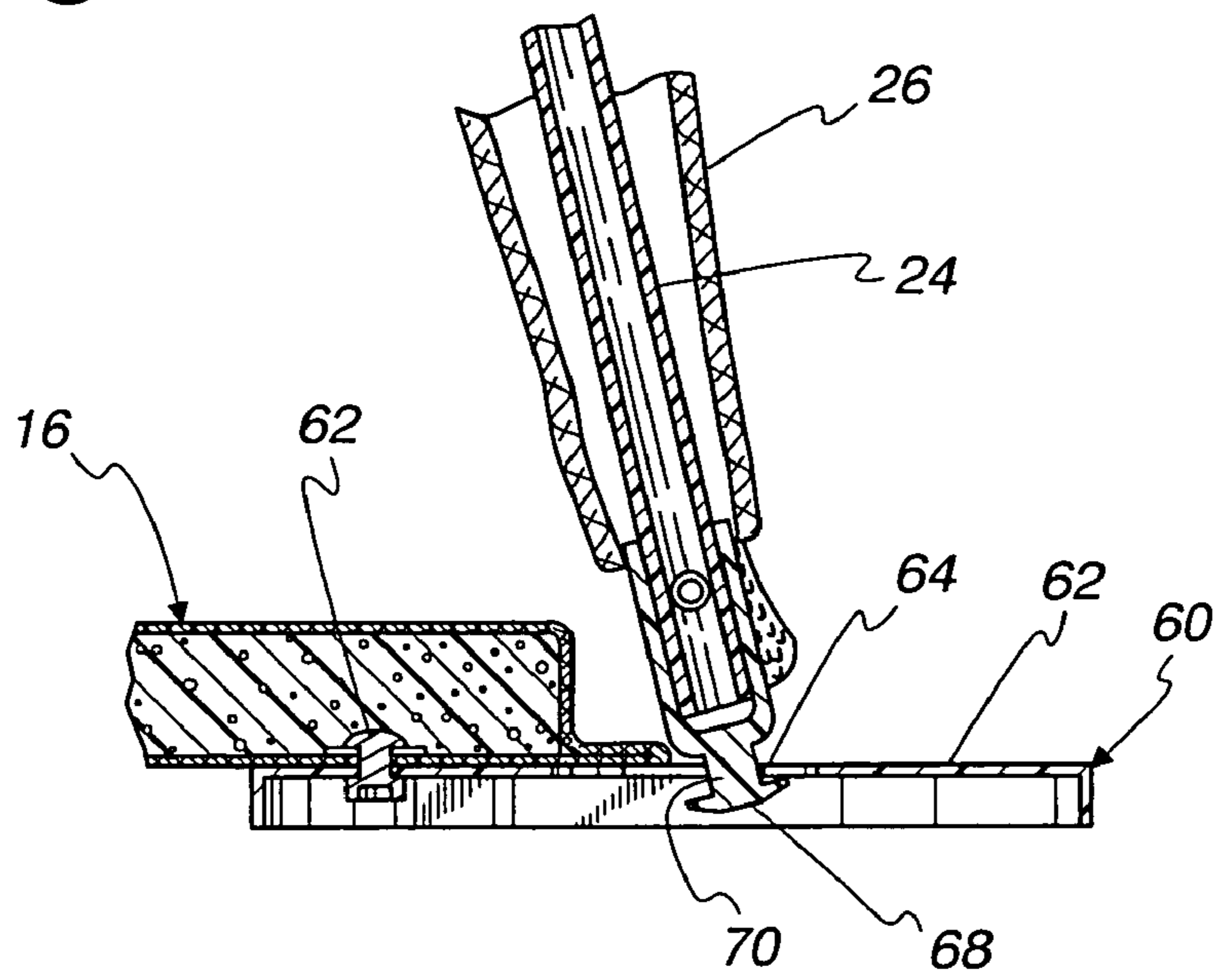


Fig. 6

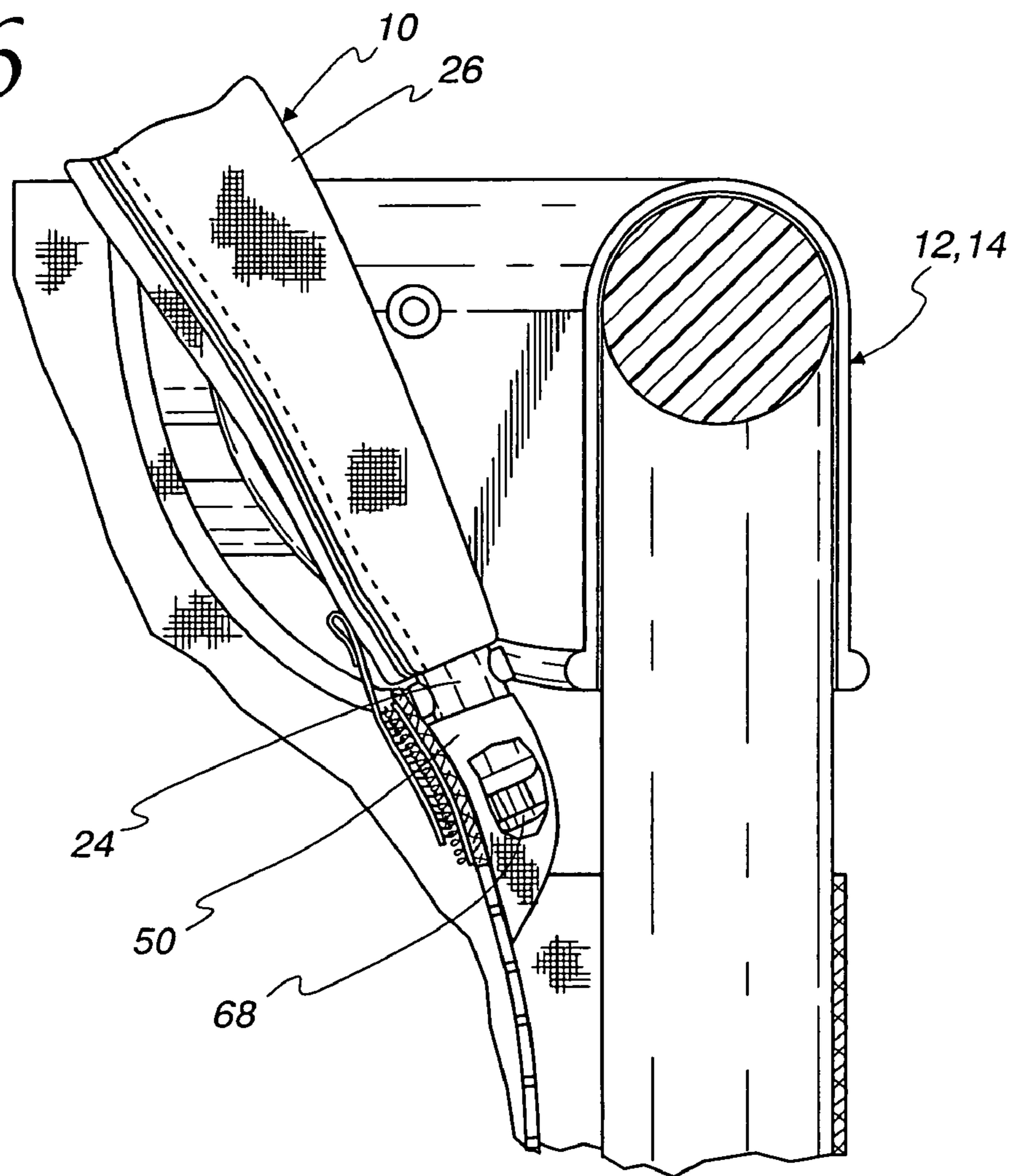


Fig. 7

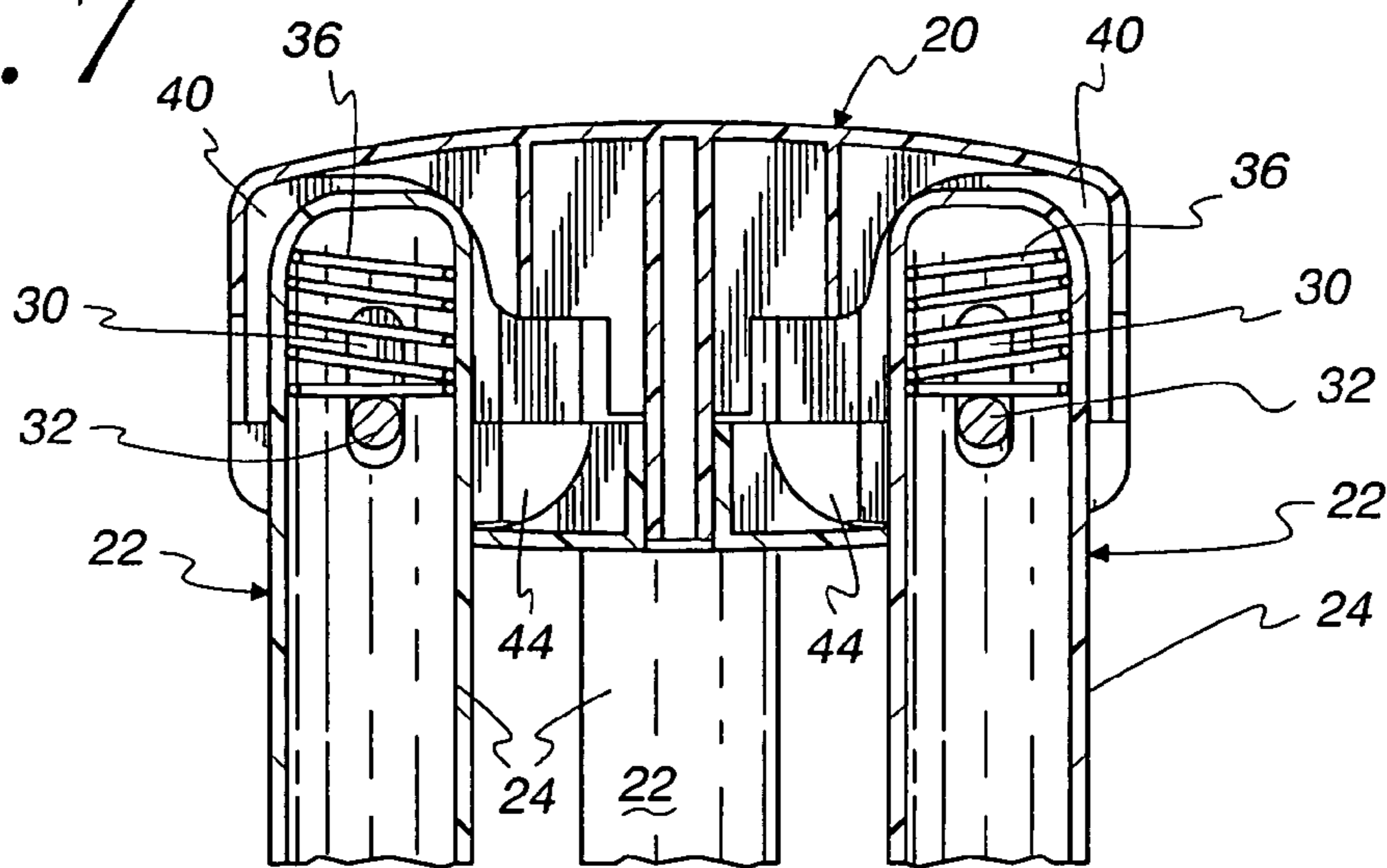


Fig. 8

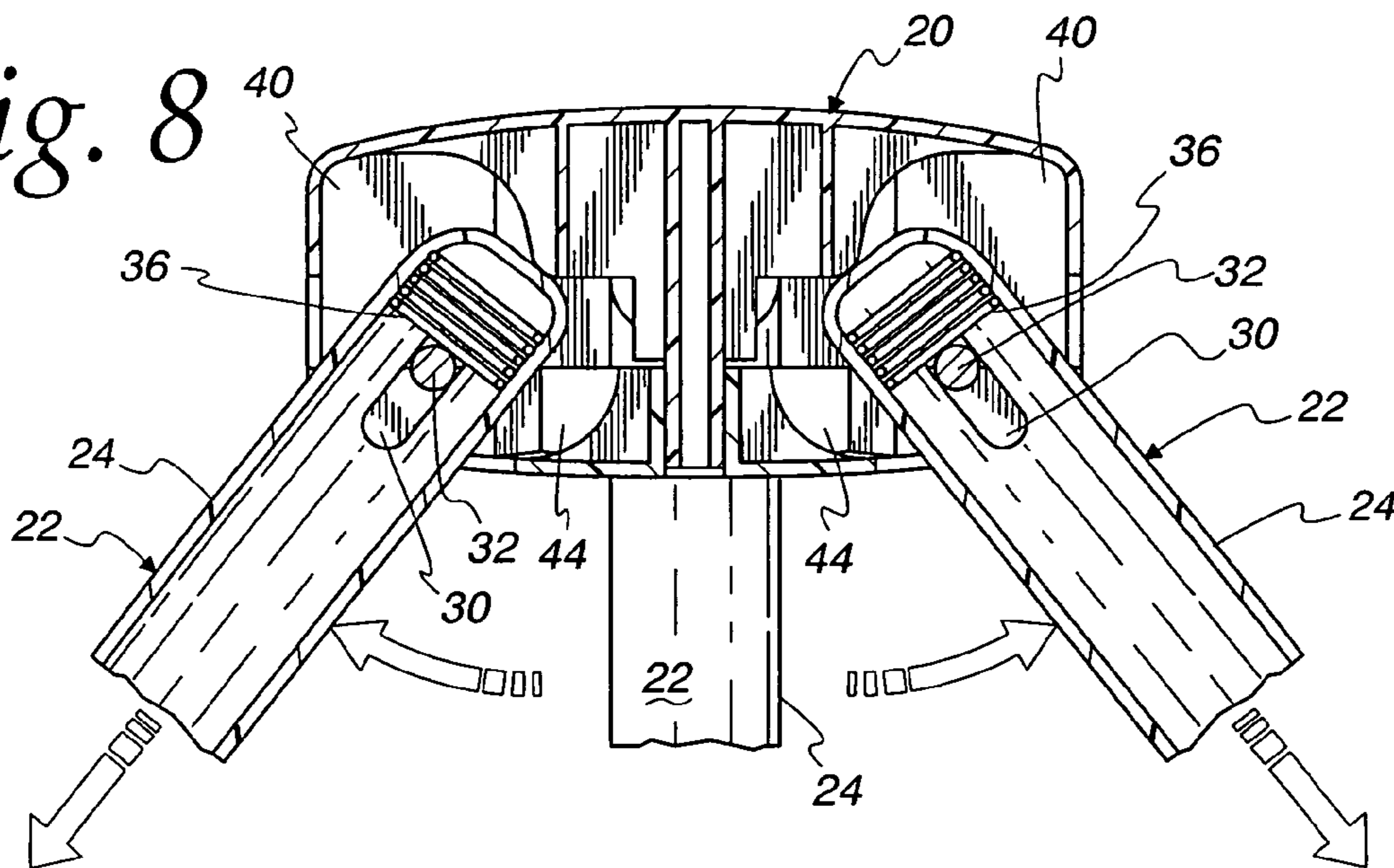
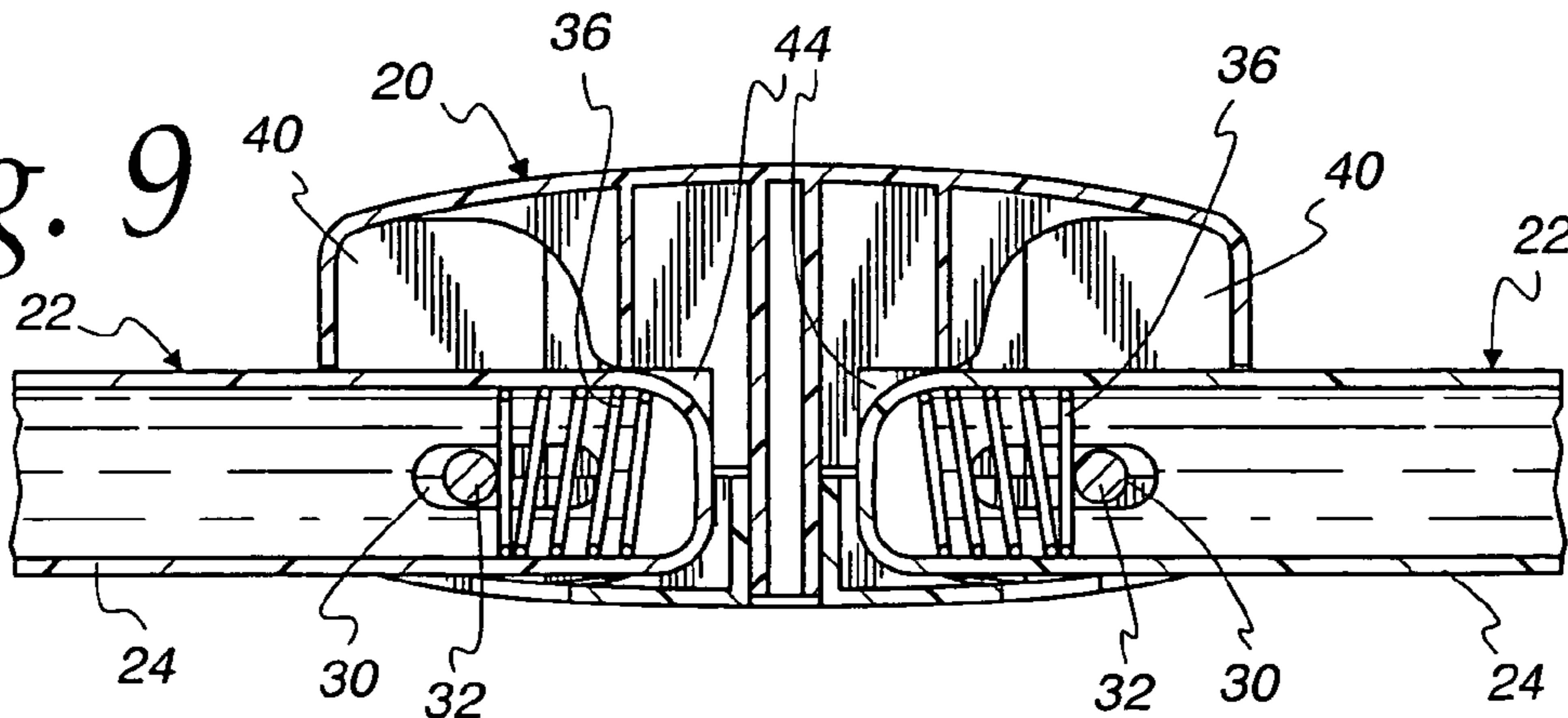


Fig. 9



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PLAY GYMS AND METHODS OF
OPERATING THE SAME

RELATED APPLICATION

This patent issues from a continuation application which claims priority from U.S. patent application Ser. No. 10/431,079 which was filed on May 7, 2003, now abandoned.

FIELD OF THE DISCLOSURE

This disclosure relates generally to child care products, and, more particularly, to play gyms and methods of operating the same.

BACKGROUND

In recent years, portable play yards have become very popular. Portable play yards typically include a frame, a fabric enclosure supported by the frame, and a removable floor board or mat. The frame is largely or completely contained within the fabric enclosure so that there are few if any loose parts when the frame is collapsed or when the frame is erected. When collapsed, the portable play yard typically has a compact form factor to enable easy transport and storage of the play yard. Sometimes, the floor board is wrapped around the collapsed frame to prevent the frame from inadvertently leaving the collapsed state.

Sometimes, these portable play yards are provided with a portable bassinet. The portable bassinet is typically suspended within the top of the play yard by hooking the bassinet to the upper rails of the play yard frame and permitting the bassinet to extend downward into the enclosure of the play yard. With the exception of depth (which is significantly lower, often one-quarter to one half the depth of the play yard enclosure), the bassinet may have substantially the same size as the play yard enclosure (i.e., substantially the same width and length), or may be smaller than the play yard enclosure (e.g., substantially the same width but approximately one-half the length). The bassinet is used with infants. When the bassinet is installed, the play yard enclosure cannot be occupied by a child, although the area below the bassinet may sometimes be used for storage of inanimate objects. When the child grows sufficiently, the bassinet is removed from the play yard and the play yard is used to house the child.

The floor mat of the play yard may be used as the floor of the play yard and/or the bassinet. In examples in which the bassinet has a smaller floor area than the play yard that supports the bassinet, the floor board may be folded (e.g., doubled up) to be used as the floor of the bassinet and fully extended to be used as the floor of the play yard.

Mats for use on a floor with an over-arching play gym have also become popular in recent years. For instance, in a known prior art device, a play gym having two flexible arches for suspending objects such as toys or the like is coupled to the corners of a rectangular mat via snaps or the like. The arches cross and are snapped to one another roughly above the middle of the mat. A small child placed on the mat may be entertained by the suspended objects. Because the play gym's arches are flexible, the suspended objects tend to bounce and move in response to vibrations such as those that might be caused by the child batting his/her hands and/or feet at the objects.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an example play yard, an example bassinet, and an example play gym.

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FIG. 2 is a perspective view of the example play gym of FIG. 1 when removed from the play yard and bassinet, and coupled to a floor mat of the play yard and bassinet.

FIG. 3 illustrates the example play gym of FIGS. 1 and 2 in an expanded state before the play gym is coupled to a play yard, a bassinet or a floor mat.

FIG. 4 illustrates the example play gym of FIG. 3 in a folded state.

FIG. 5 is a cross-sectional view of an example connector joining the example play gym of FIGS. 1-4 to the example floor board of FIG. 2.

FIG. 6 is a partial cross-sectional view of an example connector joining the example play gym of FIGS. 1-5 to an example bassinet or play yard.

FIG. 7 is a cross-sectional view of the hub and some of the legs of the example play gym of FIGS. 1-6 and showing the legs in a folded position suitable for storing the play gym.

FIG. 8 is a view similar to FIG. 7, but showing the legs being moved between the extended and locked positions.

FIG. 9 is a view similar to FIG. 7, but showing some of the legs in the extended position suitable for erecting the play gym.

DETAILED DESCRIPTION

FIG. 1 is a perspective view of an example play gym 10 mounted to an example bassinet 12 which is, in turn, mounted to an example portable play yard 14. The illustrated play gym 10 is structured to suspend an object such as a toy above the bassinet 12 and/or the play yard 14 as explained below. Additionally, the play gym 10 is structured to suspend the same or a different object above a mat 16 separate from the bassinet 12 and the play yard 14 as shown in FIG. 2. In the illustrated example, the mat 16 is a removable floor board or mat 16 which is used as the floor of at least one of the bassinet 12 and the play yard 14. Thus, as shown in FIG. 1, the illustrated play gym 10 has a first mode in which it suspends an object above the mat 16 when the mat 16 is positioned in the bassinet 12 and/or the play yard 14. As shown in FIG. 2, the play gym 10 also has a second mode in which it suspends the same or a different object above the mat 16 when the mat is removed from the bassinet 12 and/or the play gym 14, and the mat 16 is positioned on another surface such as the floor of a house. Whereas in the first mode, the play gym 10 supports the object above any or all of the bassinet 12, the play yard 14, and the mat 16, in the second mode the play gym 10 supports the object above the mat 16, but not above the play yard 14 or the bassinet 12.

The play yard 14 may be constructed in any manner. For example, it can be constructed like any of the portable play yards sold by such companies as Kolcraft Enterprises, Graco Children's Products, Evenflo, Cosco, etc. The play yard 14 may collapse into a rectangular package, may fold into a generally planar configuration (e.g., by folding in half), and/or may not be foldable. Although shown as a rectangular structure, the play yard 14 may have any other desired shape or configuration (e.g., square, triangular, round, etc.)

Similarly, the bassinet 12 may be constructed in any desired manner and/or shape. For example, the bassinet 12 may be constructed like any of the bassinets sold by such companies as Kolcraft Enterprises, Graco Children's Products, Evenflo, Cosco, etc. For instance, the bassinet 12 may be a framed or frameless bassinet that is removably suspended by hooks, snaps or any other type of fastening technique within the play yard 14. The bassinet 12 may have the same general shape and floor area as the play yard 14 as shown in FIG. 1, or may have a different shape and/or less

floor space then the play yard 14 (e.g., half the floor space of the play yard 14). Alternatively, the bassinet 12 may be a stand alone unit that is not intended for use with a play yard, is erected apart from a play yard 12, and/or is not collapsible.

As mentioned above, in the illustrated example the floor mat 16 is adapted for use as a floor for the bassinet 12 and/or the play yard 14. Thus, the floor mat 16 is dimensioned to be positioned within at least one of the bassinet 12 and the play yard 14. Since, in the illustrated example, the play yard 14 and the bassinet 12 are not intended to be in use at the same time, one floor mat 16 is provided for use with both the play yard 14 and the bassinet 12 and, thus, the floor mat 16 is dimensioned to be used with both of those structures. Alternatively, two different floor mats 16 of the same or different size and/or construction may be provided.

As used herein, the terms "floor mat" and "floor board" are equivalent and interchangeable. The floor mat 16 may be implemented in any desired manner. For example, the floor mat 16 may be a completely flexible mat made of foam, cloth, plastic and/or other materials. In the illustrated example, however, the floor mat 16 is at least partially rigid to provide a substantially solid floor for the play yard 14 and/or bassinet 12 and to provide enhanced support for a child disposed on the mat 16. In examples in which the floor mat 16 is at least partially rigid, the floor mat 16 may include a pad secured to one or more boards. The pad and board(s) may be encased in a plastic sleeve as is conventional in portable play yards sold today such as the Travelin' Tot play yard sold by Kolcraft Enterprises. If the floor mat 16 includes multiple boards, adjacent boards may be positioned along a seam to facilitate folding of the mat 16 in discrete sections. For example, the floor mat 16 may include four solid boards and be foldable in fourths for wrapping around the collapsed play yard 12 during storage and/or transport. In the illustrated example, the play yard 14 and the bassinet 12 have substantially the same floor space and the floor mat 16 is, thus, inserted into the play yard 14 and the bassinet 12 in substantially the same orientation (e.g., flat without folding). In examples in which the bassinet 12 and the play yard 14 have different sizes and/or shapes, the floor mat 16 may be folded (e.g., in half) for insertion into one or both of the bassinet 12 and/or the play yard 14.

The floor mat 16 may be removably secured in the bassinet 12 and/or the play yard 16 by any suitable fasteners. For example, the floor mat 16 may be secured to the bassinet 12 and/or the play yard 16 by Velcro strips. Alternatively, the floor mat 16 may be held in place by gravity without the benefit of fasteners.

The illustrated play gym 10 includes a hub 20 and four legs 22, although persons of ordinary skill in the art will readily appreciate that no hub and/or fewer or more than four legs 22 may alternatively be employed. For instance, the play gym 10 may include only one leg that forms an arch over the mat 16, the bassinet 12, and/or the play yard 14 without the benefit of a hub. Alternatively, the play gym 10 may include two or more legs that cross near the center of the mat 16, the bassinet 12 and/or the play yard 14; again with or without the benefit of a hub. The legs may form crossing arches and the arches may be coupled to one another either directly or through a hub.

In the illustrated example, the legs 22 of the play gym 12 are flexible such that they can be bent into the arched position shown in FIGS. 1 and 2, but will spring back to the generally planar position shown in FIG. 3 when released from the mat 16, the bassinet 12, and/or the play yard 14. In the illustrated example, the legs 22 are implemented by flexible plastic tubes 24 (see FIGS. 5 and 7-9) encased in a

plastic, vinyl, or cloth covering 26 (see FIGS. 5 and 6), although legs of other forms and materials with or without coverings of the same or different materials may likewise be employed.

In the illustrated example, the legs 22 are pivotably coupled to the hub 20 such that they can be pivoted between a stored position wherein the legs 22 are positioned generally parallel to each other as shown in FIG. 4, and an extended position wherein the legs 22 extend generally radially outward from the hub 20 as shown in FIG. 3. Persons of ordinary skill in the art will readily appreciate that the legs 22 may be coupled to the hub 20 in any number of ways. In the illustrated example, each of the legs 22 defines a slot 30 (see FIGS. 7-9) and the hub 20 includes a plurality of pins 32. Each of the pins 32 is positioned in a respective one of the slots 30. The pins 32 and slots 30 are dimensioned such that each of the legs 22 may pivot about its respective pin 32 and/or slide along its respective longitudinal axis toward and away from the hub 20. The permitted slide distance is defined by the size of the corresponding slot 30 and pin 32.

To bias the legs 22 toward the hub 20, each of the legs is further provided with a spring 36. As shown in FIGS. 7-9, in the illustrated example the springs 36 are helical springs located within respective ones of the legs 22. One end of each of the springs 36 is positioned adjacent an inner end of its respective leg 22, while the other end of each spring 36 abuts one of the pins 32. As a result, absent a countervailing force, the springs 36 force the pins 32 toward the bottom of their respective slots 30 (see FIGS. 7 and 9). In other words, the springs 36 force their respective legs 22 toward the hub 20 unless a countervailing force is applied pulling the legs away from the hubs 20.

To define the stored and extended positions of the legs 22, the hub 20 defines a plurality of cavities 40, 44. A first set of the cavities 40 is positioned to prevent the legs 22 from pivoting when the legs 22 are in the stored position. The second set of cavities 44 is positioned to prevent the legs 22 from pivoting when the legs 22 are in the extended position. Thus, each of the legs 22 is associated with a pair of cavities, namely, one of the cavities 40 from the first set and one of the cavities 44 from the second set.

More specifically, each of the cavities 40, 44 is dimensioned to receive an end of a respective one of the legs 22 when the leg 22 is in one of the stored position and the extended position. As discussed above, the springs 36 bias the legs toward the hub 20. This biasing force biases the legs 22 into engagement with respective ones of the cavities 40, 44. When the ends of the legs 22 are positioned in a corresponding cavity 40, 44, the walls of the cavity 40, 44 prevent the legs 22 from pivoting out of the cavity. Thus, when an end of a leg 22 is positioned in its first corresponding cavity 40, the walls of the cavity 40 prevent the leg 22 from pivoting out of the stored position. Similarly, when the end of the leg 22 is positioned in its second corresponding cavity 44, the walls of the cavity 44 prevent the leg from pivoting out of the extended position. As a result, when it is desirable to pivot a leg 22 between the extended and stored positions, a user must pull that leg 22 against the force of the spring 36 a distance away from the hub 20 such that the end of the leg 22 can be pivoted out of one of the cavities 40, 44 and into the other one of the cavities 40, 44 (see FIG. 8). The dimensions of the slots 30 are, therefore, chosen to permit sufficient longitudinal movement of the legs 22 to permit withdrawal of the legs 22 from the cavities 40, 44. As shown in FIGS. 7-9, in the illustrated example, the cavities 40, 44 of each pair of cavities are positioned at generally right

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angles so that the corresponding leg 22 must be pivoted approximately ninety degrees to move that leg between the extended and stored positions.

To removably couple the play gym 10 to at least one of the bassinet 12 and the play yard 14, at least one of the mat 16, the bassinet 12 and the play yard 14 is provided with connectors 50. Persons of ordinary skill in the art will readily appreciate that the connectors 50 may be implemented in any number of ways. In the illustrated example, the connectors 50 are implemented by fabric pockets 50 which are sewn or otherwise fastened adjacent the corners of the bassinet 12 and/or the play yard 14 (see FIG. 6). The ends of the legs 22 opposite the hub 20 are positioned in respective ones of these pockets 50 to thereby couple the play gym 10 to the bassinet 12 and/or the play yard 14. As shown in FIG. 1, to position all of the legs 22 in their corresponding pockets 50, the legs 22 must be bent into an arcuate shape thereby causing the play gym 10 to form a pair of arches crossing one another at the hub 20 over the bassinet 12 and/or the play yard 14. Preferably, the lengths of the legs 22 are selected to be substantially equal such that the arches cross in the middle of the bassinet 12 and/or the play yard 14 (i.e., such that the hub 20 or, if no hub is present, the point of crossing of the legs 22, is located above the center of the bassinet 12 and/or the play yard 14).

Preferably the legs 22 are selected such that, after being bent, the legs 22 will seek to return to their original, generally straight condition (see FIG. 3). As a result, when the legs 22 are bent into the arched position shown in FIG. 1, each of the ends of the legs 22 will apply a force away from the center of the bassinet 12 and/or the play yard 14 seeking to return the legs 22 into the straight position. These forces act to bias the hub 20 upward away from the bassinet 12 and/or the play yard 14 and to bias the free ends of the legs 22 into tight engagement with the sides of the pockets 50 (and, thus, with the frame of the bassinet 12 and/or play yard 14) to thereby securely hold the play gym 10 above the bassinet 12 and/or the play yard 14.

While in the illustrated example the connectors 50 are located on the bassinet 12, connectors 50 could alternatively or additionally be located on the play yard 14 such that, if desired, the play gym 10 could be mounted to the play yard 14 without the bassinet 12. Alternatively, no connectors 50 may be located on the bassinet 12 and/or the play yard 16, and the play gym 10 can instead be coupled to the bassinet 12 and/or the play yard 14 via direct connection to the mat 16. In such an approach, the mat 16 may include non-pivoting connectors located within the perimeter of the mat 16 and accessible from the top of the mat 16 to permit the mat 16 to be inserted and/or withdrawn from the bassinet 12 and/or play yard 14 without interference from the connectors and possibly with the play gym 10 still attached to the mat 16.

To removably couple the play gym 10 to the mat 16, the mat 16 is further provided with a plurality of connectors 60. To removably join the legs 22 to the connectors 60, each of the legs 22 preferably terminates in a foot 68 having a diameter approximately equal to the diameter of the leg 22, and a reduced diameter ankle 70 located between the foot 68 and the leg 22 (see FIG. 5). The feet 68 and ankles 70 may be integrally formed into a single piece and fastened to their corresponding legs 22 by a fastener such as a rivet as shown in FIGS. 3 and 8, or may be integrally formed with their corresponding legs 22.

As shown in FIGS. 2 and 5, in the illustrated example each of the connectors 60 is implemented by a plate 62 that defines an aperture 64 for receiving a respective one of feet

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68 of the legs 22. Preferably, each of the apertures 64 comprises an enlarged end or opening dimensioned to receive the foot 68 of a respective one of the legs 22. The enlarged end of the aperture 64 is in communication with a longitudinal slot having a length and a width. The width of each slot is preferably smaller than the diameter of the foot 68 and slightly larger than the diameter of the ankle 70 such that the leg 22 can easily move along the slot without withdrawing from the aperture 64. The end of the aperture 64 opposite the enlarged end may include radial slots 74 as shown in FIG. 2 to facilitate withdrawal of the feet 68 when desired.

In the illustrated example, each of the connectors 60 is pivotably coupled to the mat 16 for movement between a first position wherein the plate 62 is entirely within the perimeter of the mat 16 and a second position wherein the plate 62 lies at least partially outside of the perimeter of the mat 16. In the illustrated example, the plate 62 is pivotably coupled to the underside of the mat 16 via a rivet 62 (see FIG. 5). Thus, when the plate 62 is moved to its first position (i.e., within the perimeter of the mat 16), the connector 60 is located beneath the mat 16, but when the plate 62 is moved to its second position, at least a portion of the connector 60 is not disposed beneath the mat 16. Since, in the illustrated example, the mat 16 is intended to be used as the floor of the bassinet 12 and the play yard 14, the perimeter of the mat 16 closely matches the inner perimeter of the floor of the bassinet 12 and the inner perimeter of the floor of the play yard 14. As a result, when the user desires to use the mat 16 in one of the bassinet 12 and the play yard 14, the connectors 60 are pivoted in to their first positions so that they do not interfere with positioning the connectors 60 within the bassinet 12 or the play yard 14. When, however, it is desired to use the mat 16 with the play gym 10 apart from the bassinet 12 and/or the play yard 14, the connectors 60 are pivoted to their second positions where they can be engaged by the legs 22 of the play gym 10.

Although in the illustrated example the connectors 60 are coupled to an undersurface of the mat 16, persons of ordinary skill in the art will readily appreciate that the connectors 62 could alternatively be connected to other portions of the mat 16. For example, the connectors 62 may be adapted to move into and out of the side edges of the mat 16 or connected to a top surface of the mat 16. Alternatively, the connectors 62 may not be pivoted to the mat 16 and/or the connectors may be located within the perimeter of the mat 16 to permit coupling of the play gym 10 to the mat 16 when the mat 16 is located within the bassinet 12 and/or the play yard 14.

The enlarged ends of the slots of the apertures 64 are preferably located near the edges of the mat 16 when the connectors 60 are positioned in their extended positions outside of the perimeter of the mat 16. As a result, when the legs 22 are coupled to the connectors 60, they are inserted into the enlarged ends of the apertures 64 near the perimeter of the mat 16. When the legs 22 are released, they will attempt to move from their bent position toward a straight position as explained above. Therefore, the legs 22 are biased to slide away from the perimeter of the mat 16 and away from the enlarged ends of the apertures 64 such that the ankles 70 slide along the slots and the feet 68 run under the plates 62 to thereby secure the legs 22 to the mat 16.

Any or all of the legs 22 of the play gym 10 may be provided with straps 80 and/or split rings 82 to permit objects such as toys to be selectively attached and detached from the play gym 10. Example straps 80 and split rings 82 are shown in FIGS. 1 and 2.

In operation, a user wishing to use the play gym **10** may first erect a bassinet **12** and/or a play yard **14**. Erecting the bassinet **12** and/or the play yard **14** may include positioning a floor mat **16** within one or both of the bassinet **12** and the play yard **14**. The user may then secure the play gym **10** at least partially above one or both of the bassinet **12** and the play yard **14** by, for example, inserting the feet **68** of the legs **22** into the connectors **50** of the bassinet **12** and/or play yard **14** or into the connectors of the mat **16**.

If the user wishes to use the play gym **10** apart from the bassinet **12** and the play yard **14**, the user may remove the play gym **10** from the bassinet **12** and/or the play yard **14** by, for example, withdrawing the feet from the connectors **50**. If the user desires to use the play gym **10** with the mat **16**, the user may then remove the mat **16** from the bassinet **12** and/or the play yard **14** and position the mat **16** in a desired location of use. If pivotable connectors **60** are employed as in the illustrated example, the user may then pivot the connectors **60** out from their first positions within the perimeter of the mat **16** to their second positions outside the perimeter of the mat **16**. The user may then secure the play gym **10** to the floor mat **16** by, for example, inserting the feet **68** of the legs **22** into corresponding ones of the apertures **64** of the connectors **60**.

If the user desires to store the play gym **10**, the user may remove the feet **68** of the legs **22** from the apertures **68** to thereby remove the play gym **10** from the floor mat **16**. The user may then collapse the play gym **10** by moving the legs **22** from their extended positions (see FIG. 3) to their stored positions (see FIG. 4). To move a leg **22** to the stored position, the user may pull the leg **22** against the force of the spring **36** in a direction away from the hub **20** such that the end of the leg **22** is withdrawn from the cavity **44** and the leg **22** enters a first intermediate position. The user may then pivot the leg **22** into a second intermediate position and permit the spring **36** to pull the end of the leg **22** into the corresponding cavity **40** of the hub **20** to move the leg **22** into the stored position. The above procedures may be repeated with each of the legs **22** until all of the legs **22** are in the stored position.

Although certain example methods and apparatus have been described herein, the scope of coverage of this patent is not limited thereto. On the contrary, this patent covers all methods, apparatus and articles of manufacture fairly falling within the scope of the appended claims either literally or under the doctrine of equivalents.

What is claimed is:

1. An apparatus comprising:

a floor mat;

a play gym to suspend an object above the floor mat;

at least one connector to couple the play gym to the floor mat; and

at least one fastener to couple the floor mat to at least one of a play yard and a bassinet, wherein the at least one connector comprises a plurality of connectors, and the play gym comprises:

a hub; and

at least two legs, each of the legs having a first end coupled to the hub and a second end dimensioned to be removably coupled to a respective one of the connectors, wherein the at least two legs are pivotably coupled to the hub.

2. An apparatus as defined in claim 1 wherein the at least one connector couples the play gym to the mat when the mat is removed from the play yard and the bassinet.

3. An apparatus as defined in claim 1 wherein the at least one connector couples the play gym to the mat when the mat is located within at least one of the play yard and the bassinet.

4. An apparatus as defined in claim 3 wherein the at least one connector directly couples the play gym to the mat.

5. An apparatus as defined in claim 1 wherein the at least two legs are flexible.

6. An apparatus as defined in claim 1 wherein the hub defines a first plurality of cavities and a second plurality of cavities, wherein each of the at least two legs is pivotable between a first position in which the first end is disposed within a respective one of the first cavities and a second position in which the first end is disposed within a respective one of the second cavities.

7. An apparatus as defined in claim 6 wherein, when the at least two legs are in the second positions, the first ends are not disposed in the respective ones of the first cavities.

8. An apparatus as defined in claim 6 wherein the hub includes a plurality of pins and the first ends of the at least two legs define a slot to receive a respective one of the pins.

9. An apparatus as defined in claim 8 further comprising a plurality of springs positioned to respectively bias the at least two legs toward the hub.

10. An apparatus as defined in claim 9 wherein the springs bias corresponding ones of the at least two legs into at least one of: (a) one of the first cavities and (b) one of the second cavities.

11. An apparatus as defined in claim 9 wherein at least one of the at least two legs must be moved along its longitudinal axis and against a spring force of a corresponding one of the springs to pivot the at least one of the legs between the first and second positions.

12. An apparatus as defined in claim 1 wherein the at least two legs are flexible and are biased away from a center of the floor mat when the legs are coupled to the floor mat.

13. An apparatus as defined in claim 1 further comprising the at least one of the play yard and the bassinet, wherein at least one of the at least one of the play yard and the bassinet includes connectors to removably couple the play gym to the at least one of the play yard and the bassinet such that the play gym suspends the object above the at least one of the play yard and the bassinet.

14. An apparatus as defined in claim 13 wherein the connectors of the at least one of the play yard and the bassinet comprise pockets to receive ends of the play gym.

15. An apparatus as defined in claim 14 wherein the pockets comprise fabric pockets.

16. An apparatus as defined in claim 1 wherein at least one of the connectors defines a slot to receive the second end of a leg of the play gym.

17. An apparatus as defined in claim 1 wherein the plurality of connectors are coupled to the mat to be moved between a first position within a perimeter of the mat and a second position outside the perimeter of the mat; and

wherein, when the connectors are placed in the first position, the mat is positionable within at least one of a play yard and a bassinet as a floor of the at least one of the play yard and the bassinet.

18. An apparatus as defined in claim 1 wherein the at least one connector is located in a top surface of the mat.

19. An apparatus as defined in claim 1 wherein the at least one connector is located within a perimeter of the mat and is not pivotably coupled to the mat.

20. An apparatus as defined in claim 1 wherein the connectors are pivotably coupled to the mat.

21. An apparatus as defined in claim **1** wherein the mat comprises a padded board.

22. An apparatus comprising:

a hub; and

at least two legs, each of the legs having a first end 5 coupled to the hub and a second end dimensioned to be removably coupled to: (a) at least one of a bassinet and a play yard, and (b) a floor mat separate from the bassinet and the play yard, wherein the hub defines a first plurality of cavities and a second 10 plurality of cavities, wherein each of the at least two legs is pivotable between a first position in which the first end is disposed within a respective one of the first cavities and a second position in which the first end is disposed within a respective one of the second 15 cavities.

23. An apparatus as defined in claim **22** wherein the hub includes a plurality of pins and the first ends of the at least two legs define a slot to receive a respective one of the pins.

24. An apparatus as defined in claim **23** further comprising 20 a plurality of springs positioned to respectively bias the at least two legs toward the hub.

25. An apparatus as defined in claim **24** wherein the springs bias corresponding ones of the at least two legs into engagement with at least one of: (a) one of the first cavities 25 and (b) one of the second cavities.

26. An apparatus as defined in claim **24** wherein at least one of the at least two legs must be moved along its longitudinal axis and against a spring force of a correspond-

ing one of the springs to pivot the at least one of the legs between the first and second positions.

27. An apparatus as defined in claim **22** wherein, when the at least two legs are in the second positions, the first ends are not disposed in the respective ones of the first cavities.

28. A method comprising:

securing a play gym at least partially above at least one of a bassinet and a play yard;

removing the play gym from the at least one of the bassinet and the play yard;

securing the play gym to a mat apart from the play gym and the bassinet;

removing the play gym from the mat; and

collapsing the play gym, wherein collapsing the play gym comprises:

pulling a leg of the play gym in a direction away from a hub; and

pivoting the leg into a stored position.

29. A method as defined in claim **28** wherein pulling the leg of the play gym comprises pulling the leg of the play gym against a spring force.

30. A method as defined in claim **28** further comprising moving the leg of the play gym toward the hub to secure the leg in the stored position.

31. A method as defined in claim **30** wherein moving the leg toward the hub comprises moving the leg toward the hub under the influence of a spring force.

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US007376993C1

(12) **INTER PARTES REEXAMINATION CERTIFICATE** (1413th)
United States Patent
Myers et al.

(10) **Number:** **US 7,376,993 C1**
(45) **Certificate Issued:** **Apr. 24, 2017**

- (54) **PLAY GYMS AND METHODS OF OPERATING THE SAME**
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- (52) **U.S. Cl.**
CPC *A47D 13/063* (2013.01); *A47D 13/00* (2013.01); *A47D 13/06* (2013.01); *A47D 13/066* (2013.01); *A63B 6/00* (2013.01); *A63B 9/00* (2013.01); *A63B 17/04* (2013.01); *A63B 2208/12* (2013.01); *A63B 2210/50* (2013.01)
- (58) **Field of Classification Search**
USPC 5/655
See application file for complete search history.

Reexamination Request:
No. 95/000,514, Jan. 8, 2010

Reexamination Certificate for:
Patent No.: **7,376,993**
Issued: **May 27, 2008**
Appl. No.: **10/725,071**
Filed: **Dec. 1, 2003**

Related U.S. Application Data

- (63) Continuation of application No. 10/431,079, filed on May 7, 2003, now abandoned.

- (51) **Int. Cl.**
A63H 3/50 (2006.01)
A47D 13/06 (2006.01)
A63B 6/00 (2006.01)
A63B 17/04 (2006.01)
A63B 9/00 (2006.01)
A47D 13/00 (2006.01)

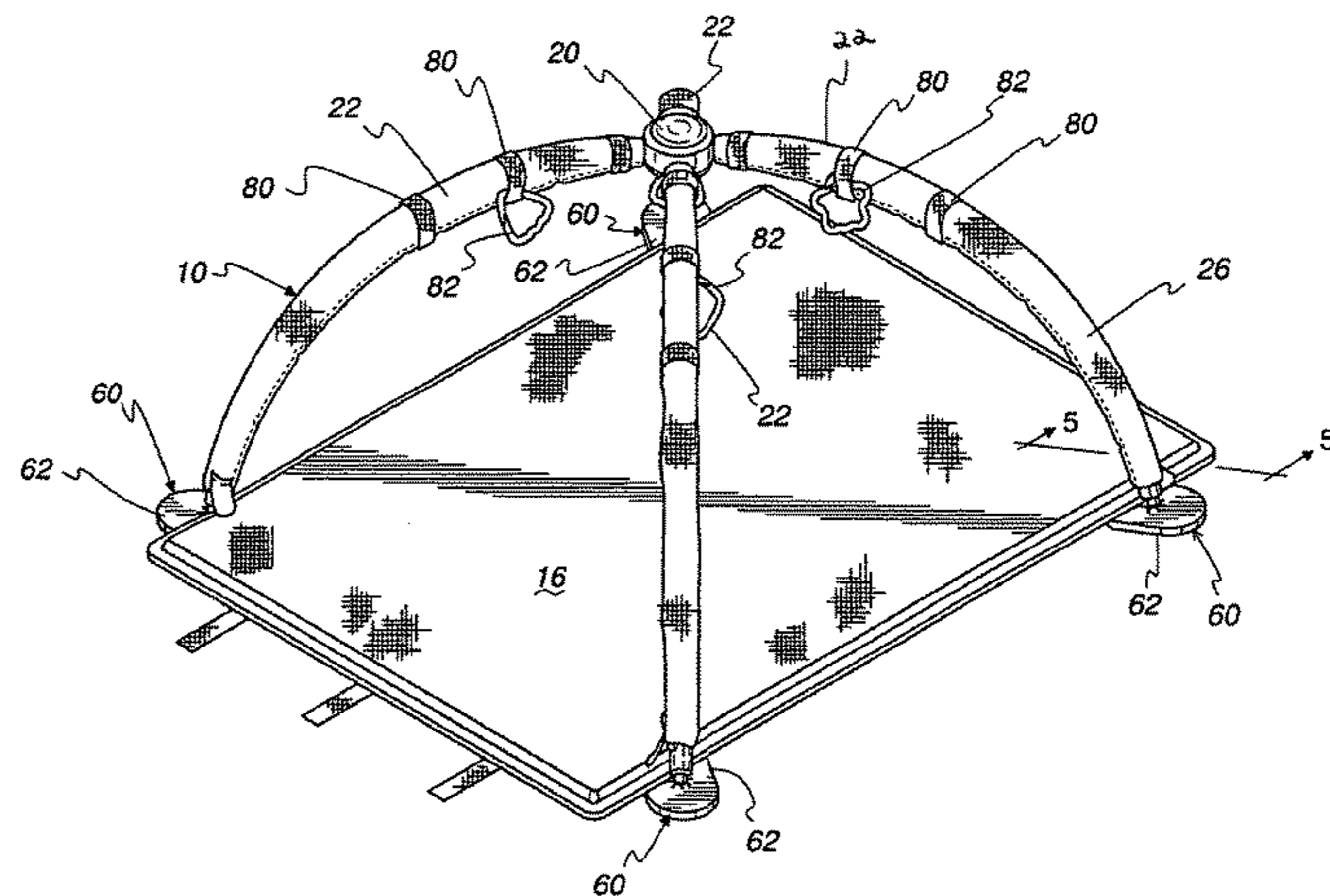
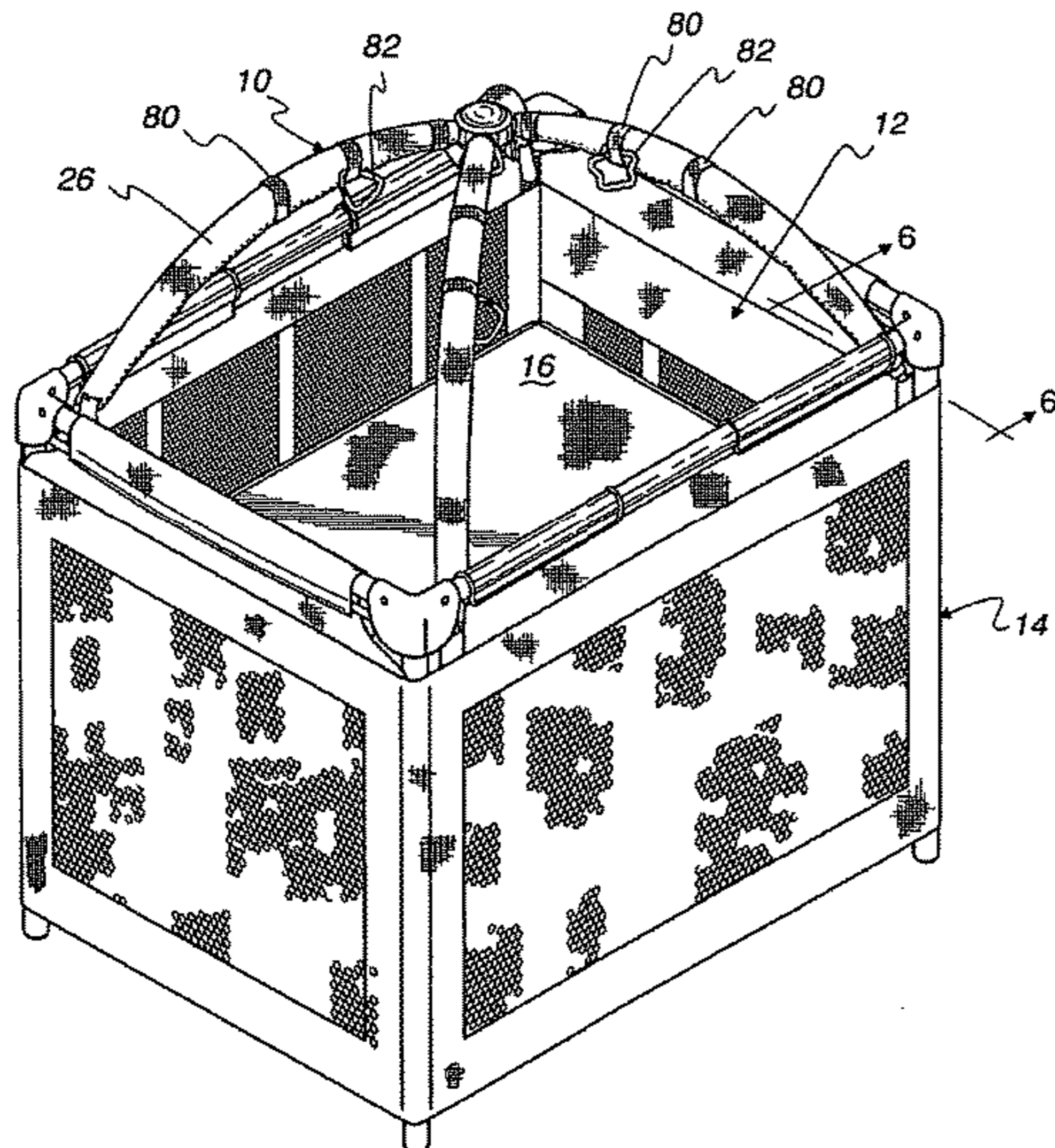
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To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 95/000,514, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Primary Examiner — William Doerrler

(57) **ABSTRACT**

Play gyms and methods of operating the same are disclosed. A disclosed example includes a floor mat dimensioned to be positioned within a play yard and/or a bassinet. It also includes a play gym to suspend an object above the mat when the mat is positioned in the play yard and/or the bassinet, and at least one connector to couple the play gym to the mat when the mat is removed from the play gym and/or the bassinet.



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INTER PARTES
REEXAMINATION CERTIFICATE

THE PATENT IS HEREBY AMENDED AS
INDICATED BELOW.

Matter enclosed in heavy brackets [] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 28-31 is confirmed.

Claims 22, 23 and 27 are cancelled.

Claims 1-4, 13, 14, 16-20 and 24 are determined to be patentable as amended.

Claims 5-12, 15, 21, 25 and 26, dependent on an amended claim, are determined to be patentable.

New claims 32-62 are added and determined to be patentable.

1. An apparatus comprising:

a floor mat;

a play gym to suspend an object above the floor mat;

at least [one connector] *two compound connectors* to couple the play gym to the floor mat; and

at least one fastener to couple the floor mat to at least one of a play yard and a bassinet, wherein *each of the at least [one connector] two compound connectors* comprises [a plurality of connectors] a first connector, a second connector and a third connector, and the play gym comprises:

a hub; and

at least two legs, each of the legs having a first end coupled to the hub and a second end dimensioned to be removably coupled to a respective one of the *compound connectors such that the first, second and third connector of each compound connector cooperate to couple a respective leg to the floor mat*, wherein the at least two legs are pivotably coupled to the hub.

2. An apparatus as defined in claim 1 wherein the at least [one connector couples] *two compound connectors couple* the play gym to the *floor mat* when the *floor mat* is removed from the play yard and the bassinet.

3. An apparatus as defined in claim 1 wherein the at least [one connector couples] *two compound connectors couple* the play gym to the floor mat when the floor mat is located within at least one of the play yard and the bassinet.

4. An apparatus as defined in claim 3 wherein the at least [one connector] *two compound connectors* directly [couples] *couple* the play gym to the *floor mat*.

13. An apparatus as defined in claim 1 further comprising the at least one of the play yard and the bassinet, wherein [at least one of the] at least one of the play yard and the bassinet includes *the third connectors* to removably couple the play gym to the at least one of the play yard and the bassinet such that the play gym suspends the object above the at least one of the play yard and the bassinet.

14. An apparatus as defined in claim 13 wherein the *third connectors* of the at least one of the play yard and the bassinet comprise pockets to receive ends of the play gym.

16. An apparatus as defined in claim 1 wherein at least one of the *compound connectors* defines a slot to receive the second end of a leg of the play gym.

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17. An apparatus [as defined in claim 1] comprising: a floor mat;

a play gym to suspend an object above the floor mat; at least one connector to couple the play gym to the floor mat; and at least one fastener to couple the floor mat to at least one of a play yard and a bassinet, wherein the at least one connector comprises a plurality of connectors, and the play gym comprises:

a hub; and

at least two legs, each of the legs having a first end coupled to the hub and a second end dimensioned to be removably coupled to a respective one of the connectors, wherein the at least two legs are pivotably coupled to the hub,

wherein the plurality of connectors are coupled to the mat to be moved between a first position within a perimeter of the mat and a second position outside the perimeter of the mat; and

wherein when the connectors are placed in the first position, the mat is positionable within at least one of a play yard and a bassinet as a floor of the at least one of the play yard and the bassinet.

18. An apparatus [as defined in claim 1] comprising: a floor mat;

a play gym to suspend an object above the floor mat;

at least two compound connectors to couple the play gym to the floor mat; and at least one fastener to couple the floor mat to at least one of a play yard and a bassinet, wherein each of the at least two compound connectors comprises first, second and third connectors, and the play gym comprises: a hub; and

at least two legs, each of the legs having a first end coupled to the hub and a second end dimensioned to be removably coupled to a respective one of the second connectors, wherein the at least two legs are pivotably coupled to the hub,

wherein [the at least one connector is located in a top surface of] *the first connector, the second connector and the third connector of each of the at least two compound connectors cooperate to couple a respective one of the at least two legs to the mat.*

19. An apparatus [as defined in claim 1 the at least one connector is located within a perimeter of the mat and is not pivotably coupled] comprising:

a floor mat;

a play gym to suspend an object above the floor mat; at least two compound connectors to couple the play gym to the floor mat; and at least one fastener to couple the floor mat to at least one of a play yard and a bassinet, and the play gym comprises: a hub; and

at least two legs, each of the legs having a first end coupled to the hub and a second end dimensioned to be removably coupled to a respective one of the compound connectors, wherein the at least two legs are pivotably coupled to the hub,

wherein *each of the at least two compound connectors includes a first connector to connect to a respective one of the at least two legs, a second connector and a third connector cooperating to couple a respective one of the at least two legs to the mat.*

20. An apparatus comprising:

a floor mat;

a play gym to suspend an object above the floor mat; at least one connector to couple the play gym to the floor mat; and

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at least one fastener to couple the floor mat to at least one of a play yard and a bassinet, wherein the at least one connector comprises a plurality of connectors, and the play gym comprises:

a hub; and

at least two legs, each of the legs having a first end coupled to the hub and a second end dimensioned to be removably coupled to a respective one of the connectors, wherein the at least two legs are pivotably coupled to the hub,

wherein the connectors are pivotably coupled to the mat.

24. An apparatus comprising:

a hub;

at least two legs, each of the legs having a first end coupled to the hub and a second end dimensioned to be removably coupled to: (a) a fabric pocket on at least one of a bassinet and a play yard, and (b) a compound connector of a floor mat separate from the bassinet and the play yard, wherein the hub defines a first plurality of cavities and a second plurality of cavities, wherein each of the at least two legs is pivotable between a first position in which the first end is disposed within a respective one of the first cavities and a second position in which the first end is disposed within a respective one of the second cavities, wherein the compound connector includes a first connector defining an aperture to receive the leg and a metal connector to secure the leg to the mat, wherein the hub includes a plurality of pins and the first ends of the at least two legs define a slot to receive a respective one of the pins; and

a plurality of springs positioned to respectively bias the at least two legs toward the hub.

32. An apparatus comprising:

a play yard having a floor mat, the floor mat having a set of first connectors and a set of second connectors,

a bassinet for suspension within the play yard;

a play gym to suspend an object above the floor mat when the bassinet is suspended in the play yard and the floor mat is in the bassinet, and to suspend the object above the floor mat when the floor mat is in neither the play yard nor the bassinet, the play gym including a hub and four legs, each of the first connectors from the first set being paired with a respective one of the second connectors from the second set, each pair of first and second connectors cooperating to removably connect a respective one of the legs to the floor mat, each of the legs having a first end pivotably coupled to the hub and a second end dimensioned to be removably coupled to the floor mat via a respective pair of first and second connectors, wherein the hub defines a first plurality of cavities and a second plurality of cavities, and wherein each of the legs is pivotable between a first position in which the first end is disposed within a respective one of the first cavities and a second position in which the first end is disposed within a respective one of the second cavities, and wherein the hub includes a plurality of pins and each of the first ends of the legs defines a slot to receive a respective one of the pins;

a plurality of springs positioned to bias the legs towards the hub; and

a fastener to couple the floor mat to at least one of the play yard and a bassinet.

33. An apparatus as defined in claim 32 wherein, when the legs are in the second positions, the first ends are not disposed in the respective ones of the first cavities.

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34. An apparatus as defined in claim 32 wherein the springs bias corresponding ones of the legs into at least one of: (a) one of the first cavities or (b) one of the second cavities.

35. An apparatus as defined in claim 32 wherein each of the legs must be moved in a direction away from the hub and against a spring force of a corresponding one of the springs to pivot the legs between the first and second positions.

36. An apparatus as claimed in claim 32 further comprising a third set of connectors of at least one of the play yard or bassinet that comprise pockets to receive ends of the play gym.

37. An apparatus as claimed in claim 36 wherein the pockets comprise fabric pockets.

38. An apparatus comprising:

a play gym having legs;

a play yard having a floor mat, the floor mat having a set of first connectors and a set of second connectors, each of the first connectors from the first set cooperating with a respective one of the second connectors from the second set to removably secure a respective one of the legs of the play gym to the floor mat;

a bassinet for suspension within the play yard;

the play gym to suspend an object above the floor mat when the bassinet is suspended in the play yard and the floor mat is in the bassinet, and to suspend the object above the floor mat when the floor mat is in neither the play yard nor the bassinet, the play gym including a hub, each of the legs having a first end pivotably coupled to the hub and a second end dimensioned to be removably coupled to the floor mat via a respective pair of the first and second connectors; and

a fastener to couple the floor mat to at least one of the play yard and a bassinet;

wherein the first connectors in the first set comprise apertures to receive respective ones of the legs and the second connectors in the second set comprise rigid mechanical fasteners, and a respective one of the apertures and a respective one of the mechanical fasteners couple a respective leg of the play gym to the floor mat.

39. An apparatus as claimed in claim 38 wherein the mechanical fasteners comprise rivets.

40. An apparatus comprising:

a play yard having a floor mat, the floor mat having a set of first connectors and a set of second connectors, each of the connectors from the first set being associated with a respective one of the connectors from the second set;

a bassinet for suspension within the play yard;

a play gym to suspend an object above the floor mat when the bassinet is suspended in the play yard and the floor mat is in the bassinet, and to suspend the object above the floor mat when the floor mat is in neither the play yard nor the bassinet, the play gym including a hub and four legs, each of the legs having a first end pivotably coupled to the hub and a second end dimensioned to be removably coupled to the floor mat via the first and second connectors; and

a fastener to couple the floor mat to at least one of the play yard and a bassinet, wherein each of the play gym legs is pivotable between a first position and a second position relative to the hub, and each of the legs is joined to the hub such that each leg can only be pivoted between the first position and the second position after pulling the leg away from the hub.

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41. An apparatus comprising:
 a play yard having a floor mat, the floor mat having at
 least first and second connectors;
 a bassinet for suspension within the play yard;
 a play gym to suspend an object above the floor mat when
 the bassinet is suspended in the play yard and the floor
 mat is in the bassinet, and to suspend the object above
 the floor mat when the floor mat is in neither the play
 yard nor the bassinet, the play gym including a hub and
 at least four legs, each of the legs having a first end
 pivotably coupled to the hub and a second end dimen-
 sioned to be removably coupled to the floor mat via the
 first and second connectors, each of the play gym legs
 being pivotable between a first position and a second
 position relative to the hub, and each of the legs being
 spring biased toward the hub such that each leg is
 pivotable between the first position and the second
 position by first pulling the leg away from the hub; and
 a fastener to couple the floor mat to at least one of the play
 yard and the bassinet.

42. An apparatus as defined in claim 41 wherein the hub
 defines a first plurality of cavities and a second plurality of
 cavities, each of the legs being pivotable between the first
 position in which the first end is disposed with a respective
 one of the first cavities and the second position in which the
 first end is disposed within a respective one of the second
 cavities.

43. An apparatus as defined in claim 42 wherein, when the
 legs are in the second positions, the first ends are not
 disposed in the respective ones of the first cavities.

44. An apparatus as defined in claim 41 wherein the hub
 includes a plurality of pins and each of the first ends of the
 legs defines a slot to receive a respective one of the pins.

45. An apparatus comprising:
 a hub; and
 four legs, each of the legs having a first end coupled to the
 hub and a second end dimensioned to be removably
 coupled to: (a) at least one of a bassinet and a play
 yard, and (b) a floor mat separate from the bassinet and
 the play yard, wherein the hub defines a first plurality
 of cavities and a second plurality of cavities, wherein
 each of the legs is pivotable between a first position in
 which the first end is disposed within a respective one
 of the first cavities and a second position in which the
 first end is disposed within a respective one of the
 second cavities, springs biasing respective ones of the
 legs towards the hub such that moving the first ends of
 the legs away from the first cavity to the second cavity
 requires pulling the legs away from the hub against the
 springs.

46. An apparatus as defined in claim 45 wherein the hub
 includes a plurality of pins and each of the first ends of the
 legs defines a slot to receive a respective one of the pins.

47. An apparatus comprising:
 a floor mat;
 a play gym to suspend an object above the floor mat;
 at least one connector to couple the play gym to the floor
 mat; and
 at least one fastener to couple the floor mat to at least one
 of a play yard or bassinet, wherein the at least one
 connector comprises a plurality of connectors, and the
 play gym comprises:
 a cylindrically shaped coupling body having four aper-
 tures radially spaced about a peripheral surface of the
 coupling body; and
 four legs, each of the legs having a first end pivotably
 joined to the coupling body at a respective one of the

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apertures and extending away from the coupling body
 to a second end dimensioned to be removably coupled
 to a respective one of the connectors, wherein each leg
 must be pulled away from the coupling body to enable
 the leg to be pivoted relative to the coupling body.

48. An apparatus as defined in claim 47 wherein each of
 the apertures includes first and second cavities, and wherein
 the first cavities are associated with a stored position of the
 legs and the second cavities are associated with an in-use
 position of the legs.

49. An apparatus as defined in claim 47 wherein the legs
 are springably biased toward the coupling body.

50. An apparatus as defined in claim 47 wherein the
 cylindrically-shaped coupling body is disc-shaped.

51. An apparatus as defined in claim 47 wherein the legs
 are dimensioned and the coupling body is positioned relative
 to the legs so that when the play gym is in use, the coupling
 body is disposed over the center of the play yard or the floor
 mat.

52. An apparatus as defined in claim 47 wherein the
 coupling body has a length that is substantially smaller than
 a length of the legs.

53. An apparatus as defined in claim 47 wherein the at
 least one connector comprises a cavity to retain the second
 end of one of the legs.

54. An apparatus as defined in claim 47 wherein the
 second ends of the legs are configured to be interchangeably
 coupled to the floor mat or the bassinet.

55. An apparatus comprising:
 a floor mat;
 a play gym to suspend an object above the floor mat;
 a plurality of connectors to couple the play gym to the
 floor mat; and
 at least one fastener to couple the floor mat to at least one
 of a play yard or a bassinet, wherein the play gym
 comprises: four legs; and
 means for pivotably holding each of the legs, wherein the
 means for pivotably holding comprises means for hold-
 ing the legs in a stored position and an in-use position,
 wherein the means for holding the legs in the stored
 position and the in-use position comprises means for
 biasing the legs toward the means for pivotably hold-
 ing, wherein each of the legs has a first end pivotably
 joined to the means for pivotably holding each of the
 legs, and wherein each of the legs extends away from
 the means for pivotably holding to a second end
 dimensioned to be removably coupled to a respective
 one of the connectors.

56. An apparatus as defined in claim 55 wherein the
 means for pivotably holding comprises four apertures, each
 of which receives a respective one of the legs.

57. An apparatus as defined in claim 55 wherein the
 second ends of the legs comprise means for interchangeably
 coupling the second ends to the floor mat or the play yard.

58. An apparatus comprising:
 a play yard having a floor mat;
 a bassinet for suspension within the play yard;
 a play gym to suspend an object above the floor mat when
 the bassinet is suspended in the play yard and the floor
 mat is in the bassinet, and to suspend the object above
 the floor mat when the floor mat is in neither the play
 yard nor the bassinet, the play gym including a hub and
 four legs, each of the legs having a first end pivotably
 coupled to the hub via a respective slot and pivot pin
 and a second end dimensioned to be removably coupled
 to the floor mat, the hub having a first external surface,
 a second external surface opposite the first external

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surface and side intermediate the first and second external surfaces, the first external surface facing the floor mat when the play gym is mounted to the floor mat, the legs having a deployed position and a stored position, the legs extending from the side when the legs are in the deployed position and the legs extending from the first external surface when in the stored position, wherein, in the deployed position, each of the legs engages a respective internal surface of the hub that limits rotation of the leg about its respective pivot pin to cause the leg to bend when the play gym suspends the object above the floor mat and the respective slots of the legs permitting translation of the legs relative to their respective pivot pins to move the legs clear of their respective internal surfaces of the hub to thereby permit the legs to pivot to the stored position; and a fastener to couple the floor mat to at least one of the play yard and a bassinet.

59. An apparatus as defined in claim 58 wherein the hub defines a first plurality of cavities and a second plurality of cavities, wherein each of the legs is pivotable between the deployed position in which the first end is disposed within a respective one of the first cavities and the stored position in which the first end is disposed within a respective one of the second cavities.

60. An apparatus as defined in claim 59 wherein each of the first cavities is disposed generally perpendicularly relative to a respective one of the second cavities.

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61. An apparatus as defined in claim 58 wherein each of the legs must be moved in a direction away from the hub and against a spring force to pivot the legs between the first and second positions.

62. An apparatus comprising:

a play yard having a floor mat;

a bassinet for suspension within the play yard;

a play gym to suspend an object above the floor mat when the bassinet is suspended in the play yard and the floor mat is in the bassinet, and to suspend the object above the floor mat when the floor mat is in neither the play yard nor the bassinet, the play gym including a hub and four legs, each of the legs having a first end pivotably coupled to the hub and a second end dimensioned to be removably coupled to the floor mat, the hub having a first surface, a second surface opposite the first surface and a side intermediate the first and second surfaces, the first surface facing the floor mat when the play gym is mounted to the floor mat, the legs having a deployed position and a stored position, the legs extending from the side when the legs are in the deployed position and the legs extending from the first surface when in the stored position; and

a fastener to couple the floor mat to at least one of the play yard and a bassinet, wherein each of the legs is joined to the hub such that each leg can only be pivoted between the deployed position and the stored position after pulling the leg away from the hub.

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US007376993C2

(12) **EX PARTE REEXAMINATION CERTIFICATE** (11416th)
United States Patent
Myers et al.

(10) **Number:** **US 7,376,993 C2**
(45) **Certificate Issued:** **Nov. 16, 2018**

(54) **PLAY GYMS AND METHODS OF OPERATING THE SAME**

A63B 9/00 (2006.01)
A47D 13/00 (2006.01)

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(52) **U.S. Cl.**
CPC *A47D 13/063* (2013.01); *A47D 13/00* (2013.01); *A47D 13/06* (2013.01); *A47D 13/066* (2013.01); *A63B 6/00* (2013.01); *A63B 9/00* (2013.01); *A63B 17/04* (2013.01); *A63B 2208/12* (2013.01); *A63B 2210/50* (2013.01)

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(58) **Field of Classification Search**
None
See application file for complete search history.

Reexamination Request:
No. 90/014,062, Jan. 10, 2018

Reexamination Certificate for:
Patent No.: **7,376,993**
Issued: **May 27, 2008**
Appl. No.: **10/725,071**
Filed: **Dec. 1, 2003**

(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/014,062, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Reexamination Certificate C1 7,376,993 issued Apr. 24, 2017

Primary Examiner — Robert M Fetsuga

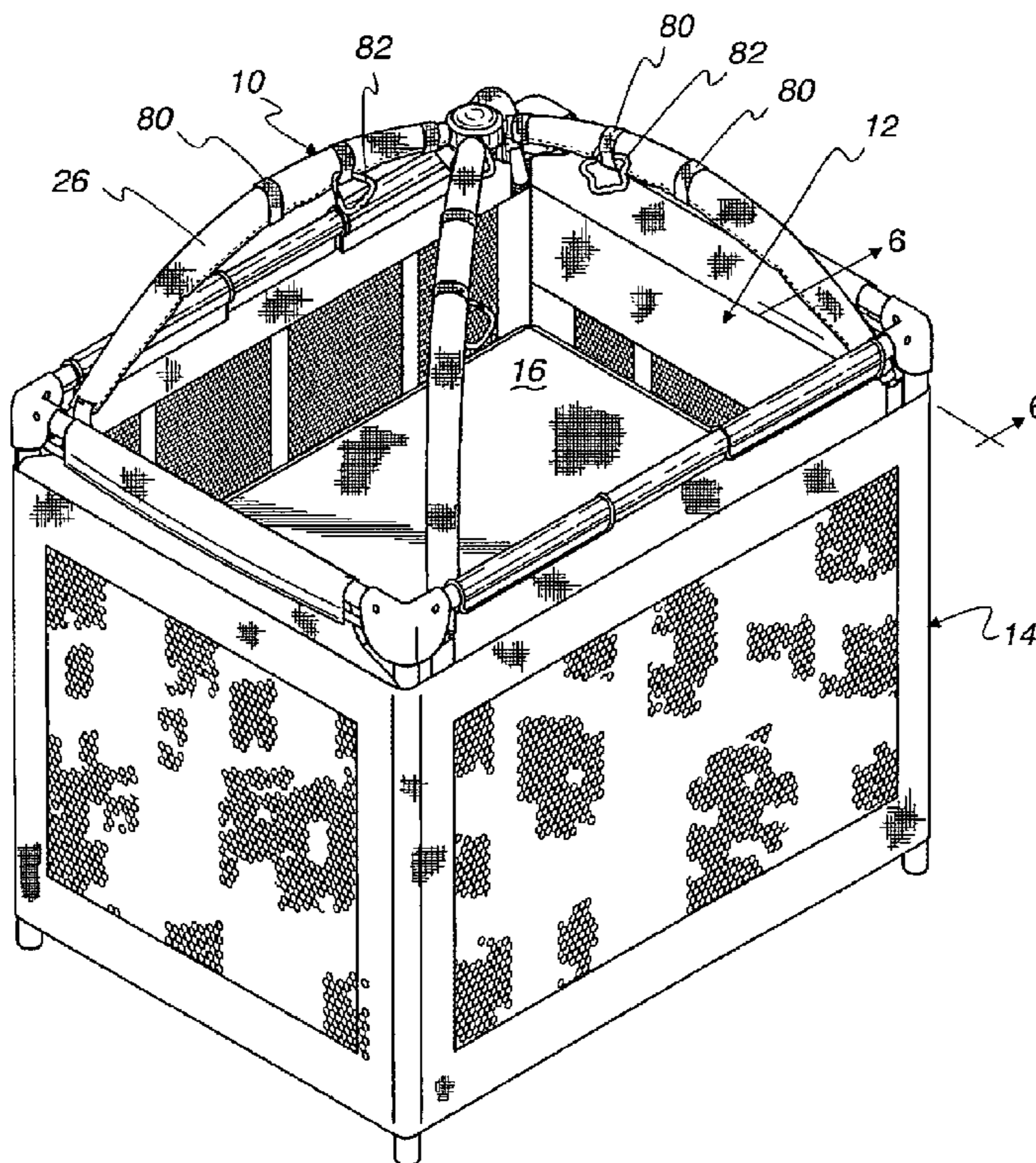
Related U.S. Application Data

(63) Continuation of application No. 10/431,079, filed on May 7, 2003, now abandoned.

(57) **ABSTRACT**

Play gyms and methods of operating the same are disclosed. A disclosed example includes a floor mat dimensioned to be positioned within a play yard and/or a bassinet. It also includes a play gym to suspend an object above the mat when the mat is positioned in the play yard and/or the bassinet, and at least one connector to couple the play gym to the mat when the mat is removed from the play gym and/or the bassinet.

(51) **Int. Cl.**
A63H 3/50 (2006.01)
A47D 13/06 (2006.01)
A63B 17/04 (2006.01)
A63B 6/00 (2006.01)



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EX PARTE
REEXAMINATION CERTIFICATE

NO AMENDMENTS HAVE BEEN MADE TO 5
THE PATENT

AS A RESULT OF REEXAMINATION, IT HAS BEEN
DETERMINED THAT:

The patentability of claims **20** and **28-31** is confirmed. 10
Claims **22, 23** and **27** were previously cancelled.
Claims **1-19, 21, 24-26** and **32-62** were not reexamined.

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